IN THE UNITED STATES DISTRICT COURT FOR THE
EASTERN DISTRICT OF VIRGINIA
ALEXANDRIA DIVISION

CONKWEST, INC.,	)	
	)	
Plaintiff	)	
	)	
v.	)	Case No. 1:13-cv-01566-GBL-TCB
	)	
MICHELLE K. LEE, Deputy Under Secretary Of Commerce for Intellectual Property and Deputy Director of the United States Patent and Trademark Office,	)	
	)	
Defendant.	)	

MEMORANDUM OPINION AND ORDER

THIS MATTER is before the Court on Defendant Michelle K. Lee's Motion for Summary Judgment (Doc. 44); Plaintiff CoNKwest, Inc.'s Motion in Limine to Preclude Defendant from Relying on Evidence not Timely Disclosed Under Rule 26(A)(2) (Doc. 33); Plaintiff's Motion in Limine to Preclude Defendant from Relying on the Inventor's Work Published Within a Year of the Filing Date (Doc. 35); Plaintiff's Motion in Limine to Preclude Defendant from Relying on Post-Filing References as Prior Art or in Support of Obviousness (Doc. 38); and Defendant's Motion in Limine (Doc. 39). This case arises from the United States Patent and Trademark Office's ("USPTO") denial of Plaintiff CoNKwest Inc.'s ("CoNKwest") patent. The USPTO found that the claims of CoNKwest's Patent Application No. 10/008,955 (the "'955 application") would have been obvious under 35 U.S.C. § 103(a) to a hypothetical person of skill in the art. CoNKwest seeks a judgment, pursuant to 35 U.S.C. § 145, that it is entitled to a patent for the invention specified in claims 20, 26, and 27 of the '955 application.

The issue before the Court is whether the Court should grant Defendant's Motion for Summary Judgment, where Defendant argues that CoNKwest's patent application is obvious under 35 U.S.C. § 103(a), while Plaintiff argues that a person of ordinary skill in the art would not have been motivated to combine the prior art references and that there are genuine issues of material fact in dispute which cannot be resolved on summary judgment. The Court GRANTS Defendant's Motion for Summary Judgment, because there is no genuine material factual dispute that the invention claimed in the '955 application is obvious over the prior art, as found by both the Patent Examiner and the Patent Trial and Appeals Board. There is no dispute that, together, the Santoli and Gong prior art references disclose all the elements of the claimed invention. Even considering the new evidence, it is clear that a person of skill in the art in 1997 would have had a reasonable expectation of success and a motivation to combine the prior art references. Additionally, CoNKwest's secondary consideration evidence is unpersuasive.

I. BACKGROUND

CoNKwest Inc., the assignee of the '955 application, brings this action seeking this Court's reversal of a Patent Trial and Appeal Board's (the "Board") decision, which rejected the methods claimed in the '955 application as obvious under 35 U.S.C. § 103(a). The '955 application claims an *in vivo* method of treating a cancer by administering the NK-92 cell line to a mammal to recognize and lyse cancer cells. CoNKwest seeks to present additional evidence supporting the patentability of its claims pursuant to 35 U.S.C. § 145. CoNKwest challenges two of the Board's findings underlying the *prima facie* case of obviousness against its claims; namely, that (1) the prior art provides a motivation to combine the prior art according to CoNKwest's claims; and (2) the prior art provides a reasonable expectation of success for the claimed method.

A. The '955 Application

The '955 application, titled "Natural Killer Cell Lines and Methods of Use" was filed December 7, 2001. (Doc. 10-2 at 1.) Hans Klingemann, M.D., Ph.D ("Applicant") is listed as the sole inventor on the '955 application. (*Id.*) The '955 application claims priority to U.S. Provisional Patent Application No. 60/045,885, which was filed on April 30, 1997. (*Id.* at 4.) The parties agree that April 30, 1997 is the relevant date to determine the knowledge comprising the prior art against CoNKwest's claims. (Doc. 50 at 1 and 4.) The claims of the '955 application cover a method of treating cancer in a mammal or a human by administering NK-92 cells to recognize and lyse cancer cells *in vivo*, i.e., in the mammal or the human. (Doc. 10-2.)

On June 6, 2002, prior to any examination on the merits, the USPTO published the '955 application. On January 27, 2005, having not received an examination on the merits of the invention, Applicant sent a "Status Inquiry" to the USPTO noting that "[t]o date, Applicant[] ha[s] not received an Official Action on the merits." (Doc. 10-5 at 96.) On September 7, 2006, the PTO, through Primary Examiner Ronald Schwadron, mailed a Restriction Requirement requiring Applicant to elect only a single group of claims to be examined on the merits. (Doc. 10-6 at 28.) The Examiner required an election of one of: Group I claims (claims 1–9), Group II claims (claims 10–19), or Group III claims (claims 20–29). (*Id.*) On October 6, 2006, Applicant filed a response to the Restriction Requirement in which Applicant elected the claims of Group III (claims 20-29) for examination on the merits, and withdrew the claims of Groups I and II (claims 1-19) from consideration. (*Id.* at 30–36.) On December 28, 2006, Examiner Schwadron mailed a second Restriction Requirement requiring Applicant to elect, from among claims 20-29, only a "single disclosed species for prosecution on the merits." (*Id.* at 38.) In particular, the Examiner required an election of one of: Species A ("method of treating a cancer or a

pathogenic virus"), or Species B ("method using cells wherein HLA expression has been inhibited or wherein the cells have been transfected with a vector encoding a cytokine or the cells of claim 28"). (*Id.* at 38–42.) On April 27, 2007, Applicant filed a response to the second Restriction Requirement electing Species A related to treating cancer as claimed in claims 20, 22, 23, 26, and 27 for examination on the merits, and withdrawing claims 21, 24, 25, 28, and 29 from consideration. (*Id.* at 50–61.) Applicant also amended claim 20 to comply with the Examiner's election requirement. (*Id.*)

On June 5, 2007, more than five years after the filing of the '955 application, the USPTO mailed its first Office Action on the merits of Applicant's invention. (*Id.* at 64.) Examiner Schwadron notified Applicant that claims 20, 22, 23, 26, 27, 30 and 31 were rejected as not patentable on the grounds of non-statutory obviousness-type double patenting over the claims of co-pending U.S. Patent Application No. 10/701,359 and under 35 U.S.C. § 103(a) as being un-patentable over a journal article authored by Gong et al., *Characterization of a Human Cell Line (NK-92) with Phenotypical and Functional Characteristics of Activated Natural Killer Cells,* 8 LEUKEMIA 652-658 (1994) ("Gong"), in view of U.S. Patent No. 5,272,082 issued to Santoli *et al.* ("Santoli"). (*Id.* at 64–71.)

On October 5, 2007, Applicant filed an Amendment and Response to the first Office Action. (*Id.* at 81.) Responding to the rejection under 35 U.S.C. § 103(a), Applicant explained why he believed that Gong, in view of Santoli, did not render obvious claims 20, 22, 23, 26, 27, 30 and 31. (*Id.* at 81-95.) On April 15, 2008, Examiner Schwadron mailed a Final Office Action rejecting claims 20, 22, 26, 27, and 30 as obvious under 35 U.S.C. § 103(a).[1] (Doc. 11-2 at 70.)

[1] The Final Office Action addressed claims 20, 22, 26, 27, and 30. Only claims 20, 26, and 27 are at issue here. The Patent Examiner listed claims 23 and 31 as withdrawn.

On October 15, 2008, Applicant filed a Request for Continued Examination, accompanied by a Declaration of Hans Klingemann, the inventor and Applicant, to provide an expert opinion explaining why claims 20, 22, 26, 27, and 30 would not have been obvious under 35 U.S.C. § 103(a) over Gong in view of Santoli. (*Id.* at 84.) On March 24, 2009, Examiner Schwadron mailed a Final Office Action rejecting claims 20, 22, 26, 27, and 30 on the same grounds as those previously set forth in the Final Office Action. (Doc. 11-4 at 55–65.)

Only claims 20, 26, and 27 of the '955 application are at issue here. Claims 20, 26, and 27, of the '955 application recite:

> 20. A method of treating a cancer *in vivo* in a mammal comprising the step of administering to the mammal a medium comprising an NK-92 cell line ATCC Deposit No. CRL-2407, wherein said cancer is recognized and lysed by said NK-92 cell line.
>
> 26. The method of treating a cancer described in claim 20 wherein the route of administration of the cells to the mammal is intravenous and the mammal is human.
>
> 27. The method of treating a cancer described in claim 20 further comprising the step of administering to said mammal a cytokine that promotes the growth of said NK-92 cell line.

B. Prior Art

Claims 20, 26, and 27 were rejected as obvious under 35 U.S.C. § 103 over the combined teachings of Daniela Santoli *et al.*, U.S. Patent No. 5,272,082 (Santoli patent, Doc. 45-2 at 2.); and Jiang-Hong Gong, "Characterization of a Human Cell Line (NK-92) with Phenotypical and Functional Characteristics of Activated Natural Kill Cells," *Leukemia* 8:652 (1994) (Gong, Doc. 45-2 at 15.). The Examiner found that the two prior art publications disclosed all of the limitations of the claims. (Doc. 11-4 at 55–65.)

Santoli's patent discloses that cells of the TALL-104 cell line recognize and lyse cells from several cancer cell lines (i.e., K562, U937, Raji, and HL60 cells). (Santoli patent, at col.13, ll.17-37.) Santoli's patent also discloses that TALL-104 cells stop cancer cell growth and

prolonged survival when administered to severe combined immunodeficiency (SCID) mice – i.e., a breed of mice with a highly ineffective immune system that is easily modified, as in Dr. Santoli's experiments, to develop cancers like leukemia. (Santoli patent, at col.14, ll.7-13.) The TALL-104 cell line is an immortalized (or transformed) cell line, developed from the peripheral blood cells of a human patient with a form of leukemia. (Santoli patent, at col.4, ll.31-35.) (citing Santoli *et al.*, Blood 77:1534-1545 (1991)). Santoli's patent discloses that, "when compared to LAK cells from normal donors (i.e., a mixture of NK cells and T cells), TALL-104 cells display higher killing efficiency against more tumor targets." (Santoli patent, at col.4, ll.31-35.) In addition to the work disclosed in Santoli's patent, Dr. Santoli and Dr. Alessandra Cesano published studies showing that, like NK cells, TALL-104 cells recognize and lyse a variety of solid tumor cell lines and leukemic cell lines, e.g., the K562 leukemia cell line. (*See* Doc. 45-4 at 2.) Based on these *in vitro* results, Drs. Cesano and Santoli tested TALL-104 cells *in vivo* and published data showing that TALL-104 cells display an aggressive pattern of tumor infiltration and tumor cell lysis when administered *in vivo* to SCID mice. (Doc. 45-5 at 6; *see also* Santoli patent, at col.14, ll.8-13.)

Around the time Drs. Cesano and Santoli reported the use of the TALL-104 cell line in adoptive therapies, Drs. Gong and Klingemann reported the development of the NK-92 cell line from the peripheral blood cells of a human patient with a leukemia. (Gong, at 1.) Gong teaches that NK-92 cells are able to lyse the cells of a variety of human leukemic cell lines, including K562 cells, Daudi cells, TF-1 cells, and ML-193 cells. (Gong, at p.654, right col.) Based on these and other characteristics, Gong states that NK-92 cells have "the phenotypical and functional characteristics of [activated] NK cells." (Gong, at p.652, right col.) More than a year before he filed the '955 application, Dr. Klingemann also co-authored an abstract for

presentation at a national scientific meeting disclosing "data showing the immunological purging of leukemic cells from blood cell preparations using the highly cytotoxic cells from the clone NK-92. . . . " (Doc. 46-5 at 12.) This abstract describes these data as "suggest[ing] that the cytotoxic NK-92 clone could be used as an efficient tool for immunological *ex vivo* purging." (*Id.*)

In 1995, Yan *et al.* also published the results of head-to-head comparisons of NK-92 cells and TALL-104 cells. (Doc. 45-7 at 27.) Yan (1995) discloses that "[r]ecent studies have shown that the human MHC unrestricted T cell clone T[ALL]104 and natural killer cell clone NK-92 are cytotoxic to human leukemic cell lines without toxicity towards normal [blood cell] progenitors."*Id.* Yan (1995) also states that "[t]o study the potential of using biological reagents in adoptive immunotherapy, we tested the tumoricidal capacity of [TALL-104 and NK-92]." *Id.* Yan (1995) further reports that, while TALL-104 cells were cytotoxic to certain cancer cell lines and primary cancer cells, NK-92 cells were "highly cytotoxic towards all cell lines and primary tumor [cell targets]." *Id.*

In the mid-1980s—i.e., prior to the development of the TALL-104 and NK-92 cells lines—researchers had previously developed cancer therapies based on the tumoricidal activity of LAK cells, i.e., mixed populations of cytotoxic T cells and NK cells derived from peripheral blood activated *in vitro* with the cytokine IL-2. (*See, e.g.*, Ex.46-1 at 2.) LAK cells had shown initial success in at least two types of therapeutic regimes: (1) *in vivo* therapies in which a patient's LAK cells were activated by the administration of IL-2; and (2) *ex vivo* therapies in which a patient's peripheral blood mononuclear cells were removed from the body, activated with IL-2, and then returned back to the patient. (*Id.*; *see also* Doc. 45-7 at 29; Doc. 45-8; and Doc. 46-1 at 12.)

Santoli's patent further discloses that TALL-104 may be used in "a method of treating human cancers, including leukemias, by administering to a patient an effective tumoricidal amount of a modified cytotoxic T-ALL cell lines preferably TALL-104." (Santoli patent, at col.10, ll.19.) Santoli's patent also discloses that this method "may be performed either *in vivo* or *ex vivo*, depending on the type of cancer to be treated." (Santoli patent, at col.10, ll.30-31.) Santoli's patent describes the intravenous administration of TALL-104 cells to human patients. (Santoli patent, at col.10, ll. 52-54) ("For human patients, the T-ALL cells may be injected intravenously (i.v.).").

C. The Examiner's Findings

The Examiner found that it would have been *prima facie* obvious to a person of ordinary skill in the art ("POSA") in April 1997 to combine the teachings of Santoli and Gong to arrive at the claimed method "because Gong *et al.* teach[es] use of NK-92 cells to lyse tumor cells, while Santoli *et al.* teach[es] *in vivo* use of cytotoxic cell lines." (Doc. 13-4 at 92.) The Examiner further found that a POSA would have been motivated to create the claimed invention because "Santoli *et al.* teach that lytic human derived cell lines can be used *in vivo* to treat disease or in preclinical *in vivo* studies (*see* column 10) whilst NK-92 was . . . known [by persons in the art to also be a] human derived lytic cell line." (Doc. 13-4 at 94.) The Examiner also found motivation to use the NK-92 cell line in Dr. Santoli's method based on Dr. Santoli's disclosure that "there is a need for therapeutic methods for treating cancers using cytotoxic cell lines because said cell lines avoid the need to produce LAK cells derived from the particular patient." (Doc. 13-4 at 96–97) (citing Santoli patent, at col.2, ll.32–38.)

The Examiner explained that "[t]he fact that NK-92 cells and TALL 104 can lyse different types of tumors (as per the *in vitro* data that was disclosed in the prior art) would lead a

[POSA] to use NK-92 . . . to treat tumors *in vivo* that were not lysed by TALL-104 cells." (Doc. 13-4 at 99.) Second, the Examiner found that the prior art provided a reasonable expectation of success for the claimed method because "Santoli *et al.* had already established that a lytic cell line with *in vitro* activity could be used *in vivo* to lyse target cells/treat disease." (*Id.*) Further, the Examiner found that "[t]he lytic properties of the NK-92 cells in *in vitro* assays [were] already known in the art." (*Id.* at 101.) Applicants appealed the Examiner's decision to the Board.

D. The Administrative Appeal

On September 15, 2009, Applicant filed a notice of appeal from the Examiner to the Board of Patent Appeals and Interferences (now the PTAB). (Doc. 11-4 at 90.) On July 9, 2010, Examiner Schwadron *sua sponte* reopened prosecution by mailing a non-final Office Action, thereby terminating Applicant's appeal. (Doc. 12-3 at 89.) Examiner Schwadron again rejected claims 20, 22, 26, 27, and 30. (*Id.*) On December 20, 2010, Examiner Schwadron mailed a Final Office Action rejecting claims 20, 26, 27, and 30. (Doc. 13-2 at 101.) The Examiner withdrew the rejection under 35 U.S.C. § 112, but maintained the other two rejections. (Doc. 13-3 at 1–8.) On March 18, 2011, Applicant once again appealed the Examiner's decision by filing a Notice of Appeal with the Board of Patent Appeals and Interferences (now the PTAB). (*Id.* at 21.)

On January 9, 2013, having received no communication from the PTAB since the second appeal was docketed on January 27, 2012, Applicant filed a "Request for Status" with the PTAB requesting a status update. (Doc. 14-1 at 16.) On October 25, 2013, after more than 11 years and 10 months since the filing of the '955 application, the PTAB issued a "Decision On Appeal" affirming-in-part and reversing in-part the Examiner's December 20, 2010 Final Office Action. (*Id.* at 30–40.)

The Board affirmed the Examiner's rejection, concluding that "the Examiner ha[d] set forth a prima facie case that it would have been obvious to administer NK-92 *in vivo* to a mammal to treat cancer." (*Id.* at 33.) The Board agreed with the Examiner's finding that a POSA would have been motivated to replace the TALL-104 cells in Santoli's method with NK-92 cells based upon Gong's disclosure that "'NK-92 cells spontaneously kill K562 [leukemia] and Daudi [lymphoma] cells with high efficiency.'" (*Id.* at 34 (Gong, at pp.653-654).) This appeal followed.

E. The Present Civil Action

On December 20, 2013, pursuant to 35 U.S.C. § 145, CoNKwest filed its Complaint seeking a judgment that it is entitled to a patent for the invention specified in claims 20, 26, and 27 of the '955 application. (Doc. 1.) On May 11, 2015, Defendant USPTO timely filed Defendant's Motion for Summary Judgment. (Doc. 44.) Plaintiff CoNKwest filed its opposition on May 29, and Defendant filed its Reply Memorandum of Law in Support of Defendant's Motion for Summary Judgment on June 9. (Docs. 53 and 59.) Defendant's motion is now properly before the Court.

1. New Evidence

Pursuant to 35 U.S.C. § 145, Plaintiff may present to this Court, new evidence relevant to disputed issues of fact that was not presented to the USPTO. CoNKwest produced three expert reports by Dr. Jeffrey S. Miller to support the patentability of claims 20, 26, and 27. (Doc. 46-8.) The USPTO likewise produced an expert report by Dr. Lewis L. Lanier as additional evidence that the Board correctly found these claims obvious. (Doc. 53-4.)

During the examination and appeals processes, CoNKwest relied solely on the testimony of Dr. Klingemann, the inventor. (Doc. 53 at 19–23.) Here, CoNKwest presents for the first

time new evidence in the form of expert testimony by a person of ordinary skill in the art—Dr. Miller. (*Id.*) Dr. Miller bases part of his opinion on the notion that the Board and Examiner both misunderstood the prior art, including the mistaken assumption that isolated NK cells has been used in vivo, in patients, to treat cancer, prior to the invention. (Doc. 53 at 21.) Dr. Miller testifies that pure NK cells had never been used to treat patients prior to the invention. (Doc. 46-8 at ¶ 41.) Dr. Miller's expert report also explores the differences between LAK cells and NK-92 cell lines and notes that LAK therapy had been found to be toxic and ineffective prior to CoNKwest's invention. (*Id.* at ¶ 37–40.) Plaintiff asserts that these findings call into question "whether the prior art LAK teaching have any application to the claimed invention or otherwise support motivation to combine." (Doc. 53 at 22.)

Dr. Miller also notes that the Board failed to appreciate that Santoli attributes activity to T cells, and thus LAK studies would have provided motivation to pursue T cells, not NK cells. (Doc. 46-8 at ¶ 41.) In his expert report, Dr. Miller, goes on to further opine that the primary references, Santoli and Gong, actually teach away from the invention. (*Id.* at ¶ 23.) For instance, Dr. Miller points to the fact that Santoli's use of unmodified TALL-104 caused cancer and rapid death in the host animal, which is why Santoli used a suicide gene. (*Id.*) The NK-92 cell lines used here do not require a suicide gene and thus Dr. Miller testifies that a POSA would have expected NK-92 cells to cause cancer and rapid death. (*Id.* at ¶ 88.) Moreover, Dr. Miller states that Gong teaches that NK-92 cells are IL-2 dependent, while Santoli teaches that IL- 2 is toxic to patients, thus the combination of Gong and Santoli would require co-administration of toxic IL-2 to an animal or human. (*Id.*) Dr. Miller also provides opinion testimony as to why the differences between NK-92 and TALL-104 cells would lead a POSA to expect different behavior in a mammalian host when using different cell types. (*Id.* at ¶ 20–25.)

Plaintiff argues, based on Dr. Miller's testimony, that there exists a material dispute of fact as to the reasonable expectation of success a POSA would have had in April 1997. (Doc. 53 at 18.) CoNKwest also argues that its objective evidence of non-obviousness further supports the patentability of the claimed invention. Specifically, Plaintiff relies on an article entitled "L.A. Billionaire Invests $48M in S.D. Cancer Biotech CoNKwest" ("Fikes") to establish evidence of objective indicia of non-obviousness based on commercial success, secondary considerations of unexpectedly superior results, long felt need, and failure of others, with respect to the use of NK-92 cells for treatment of cancer. (Doc. 46-3.)

Defendant presents the expert report of Lewis L. Lanier, Ph.D., who opines that the prior art provided a motivation to combine and a reasonable expectation of success. (Doc. 53-4.)

II. STANDARD OF REVIEW

A. Summary Judgment Standard

Under Federal Rule of Civil Procedure 56, the Court must grant summary judgment if the moving party demonstrates that there is no genuine issue as to any material fact, and that the moving party is entitled to judgment as a matter of law. Fed.R.Civ.P. 56(c) (2013).

In reviewing a motion for summary judgment, the Court views the facts in a light most favorable to the nonmoving party. *Boitnott v. Corning, Inc.*, 669 F.3d 172, 175 (4th Cir. 2012) (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986)). Once a motion for summary judgment is properly made and supported, the opposing party has the burden of showing that a genuine dispute exists. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586–87 (1986); *Bouchat v. Baltimore Ravens Football Club, Inc.*, 346 F.3d 514, 522 (4th Cir. 2003) (citations omitted). "[T]he mere existence of some alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment; the requirement

is that there be no genuine issue of material fact." *Emmett v. Johnson,* 532 F.3d 291, 297 (4th Cir. 2008) (quoting *Anderson,* 477 U.S. at 247–48).

A "material fact" is a fact that might affect the outcome of a party's case. *Anderson,* 477 U.S. at 248; *JKC Holding Co. v. Wash. Sports Ventures, Inc.,* 264 F.3d 459, 465 (4th Cir. 2001). Whether a fact is considered to be "material" is determined by the substantive law, and "[o]nly disputes over facts that might affect the outcome of the suit under the governing law will properly preclude the entry of summary judgment." *Anderson,* 477 U.S. at 248; *Hooven–Lewis v. Caldera,* 249 F.3d 259, 265 (4th Cir. 2001).

A "genuine" issue concerning a "material" fact arises when the evidence is sufficient to allow a reasonable jury to return a verdict in the nonmoving party's favor. *Resource Bankshares Corp. v. St. Paul Mercury Ins. Co.,* 407 F.3d 631, 635 (4th Cir. 2005) (quoting *Anderson,* 477 U.S. at 248). Rule 56(e) requires the nonmoving party to go beyond the pleadings and by its own affidavits, or by the depositions, answers to interrogatories, and admissions on file, designate specific facts showing that there is a genuine issue for trial. *Celotex Corp. v. Catrett,* 477 U.S. 317, 324 (1986).

B. 35 U.S.C. § 145 Standard

This civil action was brought pursuant to 35 U.S.C. § 145, which "gives the Court the power to set aside any ruling refusing a patent and determine patentability *de novo.*" *Hitachi Koki Co., Ltd. v. Doll,* 620 F. Supp. 2d 4, 16 (D.D.C. 2009) (citing *Mazzari v. Rogan,* 323 F.3d 1000, 1004 (Fed. Cir. 2003); *Newman v. Quigg,* 877 F.2d 1575, 1579 (Fed. Cir. 1989)) (citation and internal quotation marks omitted). Accordingly, in addition to the summary judgment standard of review, this Court's review under 35 U.S.C. § 145 is guided by the administrative

record. *See Johnson v. Rea,* No. 1:12–CV–440, 2013 WL 1499052, at *2 (E.D. Va. Apr. 9, 2013).

Section 145 provides that "[a]n applicant dissatisfied with the decision of the Patent Trial and Appeal Board in an appeal under section 134(a) may, unless appeal has been taken to the United States Court of Appeals for the Federal Circuit, have remedy by civil action against the Director in the United States District Court for the Eastern District of Virginia. . . ." 35 U.S.C. § 145. In a civil action under § 145, "the court may adjudge that [the] applicant is entitled to receive a patent for his invention, as specified in any of his claims involved in the decision of the [USPTO], and as the facts in the case may appear and such adjudication shall authorize the Director to issue such a patent on compliance with the requirements of law." *Id.* Unlike applicants who seek review to the Federal Circuit, applicants who first seek review in this Court by civil action may present new evidence relevant to disputed issues of fact that was not presented to the USPTO. *Kappos v. Hyatt,* 132 S. Ct. 1690, 1696 (2012). When an application does so, the Court "must make *de novo* factual finding that take account of both the new evidence and the administrative record before the [US]PTO." *BTG Int'l Ltd. v. Kappos,* No. 1:12–CV–682, 2012 WL 6082910, at *4 (E.D. Va. Dec. 6, 2012) (quoting *Hyatt,* 132 S. Ct. at 1701) (internal quotation marks omitted).

The evidentiary rules applicable to all civil actions govern § 145 actions, such that § 145 proceedings are subject to the Federal Rules of Evidence and the Federal Rules of Civil Procedure. *Hyatt,* 132 S. Ct. at 1699–1700. The Supreme Court has held that § 145 actions "should be conducted according to the ordinary course of equity practice and procedure and . . . should be prepared and heard upon all competent evidence adduced and upon the whole merits." *Id.* (quoting *Butterworth v. United States ex rel. Hoe,* 112 U.S. 50, 61 (1884)) (internal quotation

marks omitted). Because "the district court acts as a fact finder when new evidence is introduced in a § 145 proceeding," it "must assess the credibility of new witnesses and other evidence, determine how the new evidence comports with the existing administrative record, and decide what weight the new evidence deserves." *Id.* at 1700. The standard of review of the new evidence must therefore "[a]s a logical matter" be "*de novo* because [the district court] is the first tribunal to hear the evidence in question." *Id.* The Court retains discretion, however, to determine what weight to afford an applicant's newly admitted evidence by considering the proceedings before the USPTO. *Id.* at 1700. If the applicant presents no new evidence, this Court reviews the USPTO's decision under the deferential standard provided by Administrative Procedure Act ("APA"). *Johnson,* 2013 WL 1499052, at *2. Thus, under the latter standard, the Court will only set aside a Board decision that is arbitrary, capricious, or otherwise not in accordance with law. *Id.* (citing 5 U.S.C. § 706(2)(a) and *Star Fruits S.N.C. v. United States,* 393 F.3d 1277, 1281 (Fed. Cir. 2005)).

III. ANALYSIS

The Court GRANTS Defendant's Motion for Summary Judgment, because there is no genuine material factual dispute as to whether the invention claimed in the '955 application was obvious over the prior art, as found by both the Examiner and the Board.

As an initial matter the Court first addresses the necessity to construe the claims at issue, particularly the term "cancer" as used in independent claim 20. Claim terms are given their ordinary and customary meaning, absent an explicit alternative definition provided in the applicant's specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). Moreover, it is well-established that—unlike the claims in an issued patent—the claims in a patent application must be given their "broadest reasonable interpretation consistent with the specification." *See,*

e.g., Phillips v. AWH Corp., 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc); *In re Prater*, 415 F.2d 1393, 1404-05 (C.C.P.A. 1969). The Court finds that there is no dispute as to the definition of the term "cancer." CoNKwest and the USPTO agree that "cancer" as used in the claims at issue means "said cancer cells" or in other words that the claims are directed at multiple "cancer cells." The disagreement as to *how many* cancer cells the claims are directed to is immaterial to the ultimate question the Court must consider. While the Court finds no need to construe the term "cancer," the Court agrees with Plaintiff that the term means a "plurality or multiple cancer cells."

Title 35, United States Code, Section 145 (" § 145") provides in pertinent part as follows:

> An applicant dissatisfied with the decision of the Board of Patent Appeals and Interferences in an appeal under section 134(a) may, unless appeal has been taken to the United States Court of Appeals for the Federal Circuit, have remedy by civil action against the Director in the United States District Court for the Eastern District of Virginia. . . . The court may adjudge that such applicant is entitled to receive a patent for his invention, as specified in any of his claims involved in the decision of the Board of Patent Appeals and Interferences, as the facts in the case may appear and such adjudication shall authorize the Director to issue such patent on compliance with the requirements of law.

In *Hyatt,* the Supreme Court considered (1) whether there are any limitations on a patent applicant's ability to introduce new evidence before the district court in an action filed pursuant to § 145; and (2) what standard of review the district court should apply when considering new evidence. *Hyatt,* 132 S. Ct. at 1692). The Supreme Court first concluded that "there are no evidentiary restrictions beyond those already imposed by the Federal Rules of Evidence and the Federal Rules of Civil Procedure." *Id. Hyatt* also explicitly defines the only situation where consideration of the Board's decision is permitted. The Court adopted the Federal Circuit's rule that "the district court may, in its discretion, 'consider the proceedings before and findings of the

Patent Office in deciding what weight to afford an applicant's newly-admitted evidence.'" *Id.* at 1700 (quoting *Hyatt v. Kappos,* 625 F.3d 1320, 1335 (Fed. Cir. 2010)). Accordingly, where new evidence is submitted, *de novo* review of the entire record is required because the district court "cannot meaningfully defer to the USPTO's factual findings if the USPTO considered a different set of facts." *Id.*

The Court's analysis is thus framed by three intersecting legal frameworks: (1) the rules governing actions pursuant to 35 U.S.C. § 145, under which "the district court must make *de novo* factual findings that take account of both the new evidence and the administrative record before the PTO," *Kappos v. Hyatt,* 132 S.Ct. at 1701; (2) the obviousness standard which includes "the scope and content of the prior art . . .; differences between the prior art and the claims at issue. . .; and the level of ordinary skill in the pertinent art," *Graham v. John Deere Co. of Kan. City,* 383 U.S. 1, 17 (1966); and (3) the summary judgment standard, pursuant to which "the movant [must] show[ ] that there is no genuine dispute as to any material fact," Fed. R. Civ. P. 56(a), and the "evidence of the non-movant is to be believed, and all justifiable inferences are to be drawn in his favor," *Anderson,* 477 U.S. at 255, 106 S. Ct. 2505.

In sum, the question before the Court is: has the Director shown that no reasonable trier of fact could find that CoNKwest's evidence outweighs the Director's own evidence regarding whether the claimed invention is obvious? Here, considering all the necessary legal framework, the Court holds that no reasonable trier of fact could find that the claimed invention was not obvious over the prior art. Accordingly, the Court grants Defendant's Motion for Summary Judgement. Each of the relevant legal frameworks are discussed in turn.

A. 35 U.S.C. § 145

The Court is unpersuaded by the new evidence CoNKwest presents in the form of Dr. Miller's expert reports and instead finds that the evidence supports the Board's decision that the three claims at issue are obvious.

Because Plaintiffs offer new evidence to support their position with respect to the Board's final rejection for obviousness, the Court employs a *de novo* standard as to the necessary factual findings, taking into account both Plaintiffs' new evidence and the administrative record. *Hyatt,* 132 S. Ct. at 1701; *Johnson,* 2013 WL 1499052, at *2. Under *Hyatt,* a plaintiff in a § 145 action is entitled to present all evidence admissible under the rules of evidence as to all claims, whether or not that evidence was first presented to the Board.

Here, Plaintiff presented three expert reports from Dr. Jeffrey S. Miller to support the patentability of claims 20, 26, and 27. The USPTO likewise produced an expert report by Dr. Lewis L. Lanier as additional evidence that the Board correctly found these claims to be obvious. The Court, as instructed by *Hyatt*, considered the newly presented evidence *de novo* along with the administrative record. As discussed above, CoNKwest presents for the first time new evidence in the form of expert testimony by an independent person of ordinary skill in the art—Dr. Miller. (Doc. 53 at 19–23.)

In his expert report, Dr. Miller, opines that the primary references, Santoli and Gong, actually teach away from the invention. (Doc. 46-8 at ¶ 23.) For instance, Dr. Miller points to the fact that Santoli's use of unmodified TALL-104 caused cancer and rapid death in the host animal, which is why Santoli used a suicide gene. (*Id.*) The NK-92 cell lines used here do not require a suicide gene and thus Dr. Miller testifies that a POSA would have expected NK-92 cells to cause cancer and rapid death. (*Id.* at ¶ 88.) Moreover, Dr. Miller states that Gong teaches that NK-92 cells are IL-2 dependent, while Santoli teaches that IL- 2 is toxic to patients,

thus the combination of Gong and Santoli would require co-administration of toxic IL-2 to an animal or human. (*Id.*)

The Court is unpersuaded by Dr. Miller's report and finds that the evidence, including the newly admitted evidence, supports the Board's decision that the claims are obvious. Dr. Miller's expert reports do not persuade the Court as to the obviousness of the claims at issue. Particularly, the Court finds that it would have been obvious to administer the NK-92 cell line *in vivo* to a mammal to treat cancer, in light of the Gong and Santoli references. While the Court finds that Dr. Miller is a POSA, his conclusions stand in contrast to the prior art. The Court finds that a POSA in 1997 would have had motivation to combine the prior art with a reasonable expectation of success.

B. Obviousness

The Court finds that CoNKwest's claimed invention would have been obvious to a person of ordinary skill in the art in 1997.

Section 103(a) of Title 35 of the United States Code provides that a patent may not be obtained if the differences between the claimed invention "as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a). In other words, under the patent statute, an invention that would have been obvious to a person of ordinary skill in the relevant art at the time of the invention is not patentable. Obviousness is a question of law to be decided by the Court and "is focused on the scope of the patent in suit, not the patentee's goal in creating the patent." *Pfizer Inc. v. Teva Pharm. USA, Inc.*, 803 F. Supp. 2d 409, 440 (E.D. Va. 2011) (citing *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 419 (2007)). The factors guiding the obviousness inquiry are (1) the scope and content of the prior art; (2) the level of skill in the art; (3) differences between the claimed invention and the

prior art; and (4) any relevant secondary considerations, including commercial success, long-felt but unsolved needs, and the failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *DyStar Textilfarben GmbH & Co. v. C.H. Patrick Co.*, 464 F.3d 1356, 1360–61 (Fed. Cir. 2006).

A patent "is not proved obvious merely by demonstrating that each of the elements was, independently, known in the prior art." *Teleflex,* 550 U.S. at 418. "[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious." *Id.* at 416. An inventor's decision to act contrary to the accepted wisdom of the art is indicia of nonobviousness. *See United States v. Adams,* 383 U.S. 39, 52 (1966). However, if a person of ordinary skill, who is typically able to combine the teachings of multiple patents, is able to "implement a predictable variation" based on that combination, then such variation is unpatentable as obvious. *Johnson,* 2013 WL 1499052, at *3. The Supreme Court recognized that an obviousness analysis will often require "a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *Id.* at 418.

Objective evidence of nonobviousness must also be considered, including "secondary considerations" such as "commercial success, long felt but unsolved needs, failures of others, etc." *Disney Enterprises, Inc. v. Rea*, 940 F. Supp. 2d 288, 293 (E.D. Va. 2013) (internal citations omitted); *see also KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007). In short, however, "[a]n obviousness analysis measures the difference between the claimed invention and the prior art to determine whether the subject matter as a whole would have been obvious at the

time the invention was made to a person having ordinary skill in the art." *Disney Enterprises, Inc.*, 940 F. Supp. 2d at 291 (quoting *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1289 (Fed. Cir. 2006)).

The Court finds that CoNKwest's claimed invention—an *in vivo* method of treating a cancer by administering the NK-92 cell line to a mammal to recognize and lyse cancer cells—would have been obvious to a person of ordinary skill in the art in 1997. Here, a POSA would have been motivated to "implement a predictable variation" based on the Santoli and Gong references, which renders the variation unpatentable as obvious. *See Johnson,* 2013 WL 1499052, at *3. Specifically, it would have been *prima facie* obvious to a POSA in April 1997 to have combined the teachings of Santoli and Gong to arrive at the claimed method "because Gong *et al.* teach[es] use of NK-92 cells to lyse tumor cells, while Santoli *et al.* teach *in vivo* use of cytotoxic cell lines." The Court further finds that a POSA in 1997 would have been motivated to substitute the TALL-104 cell with the functionally similar NK-92 cells to achieve the claimed method and would have reasonably expected success in doing so.

In deciding whether or not a claimed invention is obvious, the Federal Circuit has instructed the USPTO to consider objective evidence of nonobviousness. *In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996). Secondary considerations like "commercial success, long felt but unsolved needs, failure of others, etc., might be utilized as . . . indicia of obviousness or nonobviousness. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18, (1966) (citing Note, Subtests of 'Nonobviousness': A Nontechnical Approach to Patent Validity, 112 U. PA. L. REV. 1169 (1964)). However, the USPTO lacks the means or resources to gather evidence which supports or refutes an applicant's assertion that the sales constitute commercial success, so accordingly the USPTO relies upon the applicant to provide hard evidence of commercial

success. *Id.* The "success is relevant in the obviousness context only if there is proof that the sales were a direct result of the unique characteristics of the claimed invention—as opposed to other economic and commercial factors unrelated to the quality of the patented subject matter." *Id.* (internal citations omitted).

The Court is unpersuaded by CoNKwest's evidence of secondary considerations. Neither Dr. Miller nor the U-T San Diego article authored by Fikes offer any persuasive evidence of commercial success, long-felt but unsolved needs, failures of others, etc. The Fikes article does little more than reveal that there was a $48 million dollar investment in CoNKwest as part of a stock trade. Though the article mentions phase I clinical trials, the article does little in the way of proving that the alleged success, or investment, was the "direct result . . . of the claimed invention—as opposed to other economic and commercial facts." The Court is not convinced that there is a direct nexus between Dr. Soon-Shiong's $48 million dollar investment in CoNKwest and the merits of the claimed invention.

C. Summary Judgment

Here, the Court finds, based on the newly-presented evidence as well as the administrative record, that there is no genuine material factual dispute that the invention claimed in the '955 application is obvious over the prior art, as found by both the Examiner and the Patent Trial and Appeals Board. There is no dispute that, together, Santoli and Gong disclose all the elements of the claimed invention. Even considering the new evidence and drawing all inferences in CoNKwest's favor, it is clear that a POSA in 1997 would have had a reasonable expectation that NK-92 cells would recognize and lyse one or more cancer cells *in vivo* in a mammal. Additionally, CoNKwest's secondary consideration evidence is unpersuasive.

IV. CONCLUSION

The Court grants Defendant's Motion for Summary Judgment, because there is no genuine material factual dispute that the invention claimed in the '955 application is obvious over the prior art, as found by both the Examiner and the Patent Trial and Appeals Board.

ORDERED that Defendant's Motion for Summary Judgment (Doc. 44) is GRANTED; it is further

ORDERED Plaintiff CoNKwest, Inc's Motion in Limine to Preclude Defendant from Relying on Evidence not Timely Disclosed Under Rule 26(A)(2) (Doc. 33) is **DENIED as MOOT**; it is further

ORDERED Plaintiff's Motion in Limine to Preclude Defendant from Relying on the Inventor's Work Published Within a Year of the Filing Date (Doc. 35) is **DENIED as MOOT**; it is further

ORDERED Plaintiff's Motion in Limine to Preclude Defendant from Relying on Post-Filing References as Prior Art or in Support of Obviousness (Doc. 38) is **DENIED as MOOT**; and it is further

ORDERED Defendant's Motion in Limine (Doc. 39) is **DENIED as MOOT**.

IT IS SO ORDERED.

ENTERED this 2nd day of September, 2015.

Alexandria, Virginia
9/2/15

/s/
Gerald Bruce Lee
United States District Judge